

A ONE-YEAR ANATOMICAL COURSE, ITS AR-
RANGEMENT, MERITS AND DISAD-
VANTAGES.¹

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It has become a common matter for the older medical practitioners to ridicule anatomy courses because out of the vast number of details which students are required to learn, so few are of immediate use in the every day treatment of the sick. It is not to be denied that most of what is gone over (and in some cases learned) in this elusive branch, is soon forgotten, yet there is a weighty reason for presenting this mass of details to medical students which is often overlooked.

Of the strictly medical subjects human anatomy is undoubtedly the most fundamental, and upon it depends almost every other subject in the curriculum. Perhaps the greatest use that anatomy obtains is during the medical course. It is the first step which one must take toward a proper understanding of physiology, pathology and rational therapeutics. If the principles of anatomy and the descriptive matter have been so well learned that the student can pursue intelligently the more advanced medical studies, then even though he forget, in after years, many particulars of structure and relation, he will have reached his conclusions, starting with facts which he has demonstrated, and these conclusions he retains as his working basis during the years of practice.

Not with any intention to curtail or belittle the study in relation to others was anatomy made a one-year course; the aim was to place this fundamental subject in the very beginning of the curriculum.

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For some time it has been in the mind of the writer to attempt certain departures from the course in anatomy usually set down for medical students, with a view of systematising the work as well of obtaining some statistical results.

The course now offered in the Medical Department of Washington University, is, in the main, that which was contemplated, although two factors not anticipated have changed somewhat its general aspect.

The plan involved the introduction into the dissecting room of the ordinary laboratory method of teaching large classes; to put it briefly, a whole class was to study a particular region at a certain time: every student dissecting the upper limb during one period, all working upon the head at the same time.

This arrangement would provide a graded course of work, would lessen the labor of teaching and economize in many ways, as can easily be understood. It was believed that such a course would facilitate keeping a record of the findings during the gradual systematic analysis of each body; and besides, a good opportunity for a study of a series of regions would always be present.

In order to carry out this plan it would be necessary to have at the start material for the classes well enough preserved to last throughout the course.

At the time when this plan was first considered, there was an abundance of dissecting material and the period of study extended over two years; but within the last three years useful material has become exceedingly scarce, and by action of the faculty of the medical department the anatomy course (with the exception of certain work to be mentioned later), was limited to the first year.

One object in making this change in the curriculum was to place anatomy in advance of the dependent studies, physiology and pathology; these and like fundamental subjects were all assigned to the first two years, while the last

two years were reserved for the practice of medicine, surgery and the specialties. Thus the student in the beginning would concentrate his attention on a few things.

Although the greater part of anatomical study is done in one year as a preparation or foundation for work to follow, one other course in this subject is required of second year students and under the name of Applied Anatomy a series of lectures and demonstrations is given covering the regions of most interest to the physician. In this course there is presented that collection of anatomical data which the practitioner should retain ready for use in his daily work. Finally optional work is offered to students of the third and fourth years who wish to extend their knowledge of the subject. These last mentioned departments should be kept in mind in reading what is to follow lest the impression be got that the preparatory system of the first year (the one year course, which alone is the subject of this paper) is the only anatomical work offered.

The salient features of this one-year course are parallelism of lectures and practical work; the study of the gross and fine structure of a given organ simultaneously; pursuance of the same work daily by the whole class; introduction into the course of the study of fresh material; record keeping of all parts examined in the human dissection. With few and unimportant exceptions the work is carried on in the way now to be described.

During the first two weeks the time is given to the study of the body plan, for with us a large number of the beginners have no conception of the general arrangement of animal structures. Yet it is probable even in the event of having future classes prepared by biological work, that a review of the main facts of animal organization would be given as an introduction to the special work of human anatomy.

Every effort is made to have this part of the work well learned; along with some lectures which treat the subject

from a developmental standpoint, laboratory work is undertaken, in the course of which some simple animal is dissected, and drawings made of the several systems, and of the conventional sections of the body. It is at this time that many of the descriptive terms (e. g. terms of direction) are learned:

Throughout the rest of the first half year the locomotory apparatus is taught by means of lectures and recitations. It would appear that too much time is spent on such a subject, when but one year is allowed for the whole course; but it has been found more profitable to have the work go slowly in the start, and to train the class in anatomic methods on the simpler parts than to hurry the students, badly prepared, to the study of difficult and more important organs.

As soon as enough of the skeleton has been learned to justify beginning dissection the class is put to work upon the lower limb, after the completion of which the upper limb is undertaken and finished by the end of the first half year. Since the manner in which the dissection is conducted is quite different from the usual way, it is desirable to explain at some length.

The whole class is divided into groups of five, each receiving a subject which is to last until the end of the course. Of the five men, two dissect, two read, and one keeps a record of everything found; an interchange of duties occurs daily, with the result that during the week each student records once, reads twice and dissects twice. Two students, reader and dissector, are upon each side of the body, and the recorder sees and notes down the results of both dissections.

One book is recommended as a dissecting guide, and from it a program is prepared in which the subject matter is laid out for the day and the week. Under no consideration is a student permitted to work beyond the limits indicated. Moreover, the dissectors are required to expose and care-

fully to prepare all parts coming in the program of the week's work, and to stand a practical examination on the same at the end of the week, for which a special time is set. As the success of a student in this examination depends wholly on what he can show (not tell about), the quality of the dissections is kept at a high standard during the whole period of practical work.

Following the last dissection of the week, on the day preceding the examination, the class is given a review of the dissections by means of lantern pictures. The salient points in the week's work are thus brought out.

Histology, with us, is still taught in connection with the physiological department, but in spite of this the work is so arranged by having the microscopic studies running parallel with the topics of gross anatomy that the relation of the two is re-established. The anatomical work of the first half year then comprises a study of the body plan, the cell and tissues, the skeleton, joints and several groups of muscles, along with the fine anatomy of bones, articular structures, muscles and adnexa; dissection of the limbs.

Thus the practice gone through with in dissecting parts not likely to be ruined by the beginner, and the familiarity with the use of terms and simple descriptions have prepared the class for the more difficult, and at the same time dependent work, of the succeeding half year.

The second semester finds the men engaged in work upon the vegetative organs and nervous system. The number of hours a week has been slightly increased, and the difficulties at first encountered having been overcome by this time, better results are obtained. Practicums now take the place of lectures; an abundance of fresh material is supplied from the slaughter house in order that an opportunity shall be given to learn the natural conditions of organs, and to provide also for the study of that finer architecture which it is difficult to make out in bodies long dead and preserved,

and which standing between gross and fine anatomy is so often neglected.

The coats of arteries, the disposition of the fibre bundles in the heart wall, the cardiac valves, the coats of hollow viscera and the lobule of the liver are examples of the kind of work done in the practicums. Much of it is carried out by dissections under water, by studies of corrosions and through other special methods. To a large extent it is the kind of work requiring the aid of the simple microscope.

The central nervous system is taken up during the last quarter of the year. The gross anatomy of the cord and of the sheep's brain and human brain make up this part of the course. During the period in which the students are occupied with the vegetative organs in the practicums, dissection of the chest and abdomen is being carried on, and finally the head is dissected at the time when the brain and sense organs are under examination.

It will be seen from this that the structure, form and relations of a viscus are studied at the same time; and the work in histology going on in a parallel course completes the picture.

A few words may be said in regard to the value of a one-year course in anatomy conducted in the way described.

While followed by the course in applied anatomy, and the choice of further work being offered, there is still some question as to the advisability of having all of the dissection and the bulk of the lectures in one year. Spreading the work over two years, permitted, through periods of rest, time for reflection and for assimilation of the subject. The present arrangement tries to compensate for this by lessening the number of other studies in the first year and by offering a system which economizes time and labor.

The simultaneous study of similar parts by every member of the class I consider of great value.

Anyone who began his study of osteology with a single

set of bones and who, later, had the opportunity of reviewing a large number of like skeletal parts, must have been struck with the way in which all, even obscure markings, seemed to loom up. When fifty *axillae* dissected to the same stage are ranged in lines, the student going from one to another gets a strong impression of even the most minute parts of the region.

Much has been gained in keeping the dissections in regular progress by using the program of daily work; laggards and those who do hasty and slovenly work have no chance when it comes to the display of the many structures in the practical examination at the end of the week.

Since the course has been made to precede pathology and physiology in part, there are no more of those remarkable situations in which students were sometimes placed, when, for example, they were led to the study of hepatitis, and the anatomical work had not reached the liver; or when they heard lectures on excretion and their stock of anatomical learning was the skeleton and joints.

But whatever the advantages may be that come from such a system it must be confessed that there must always be the most watchful observance against loss of time. A few days or a week lost on account of some unforeseen condition makes irreparable trouble; such a matter could easily be adjusted in the two-year course.

